

PRODUCING NICKEL-BASE, COBALT-BASE, IRON-BASE,  
IRON-NICKEL-BASE, OR IRON-NICKEL-COBALT-BASE  
ALLOY ARTICLES BY REDUCTION OF NONMETALLIC  
PRECURSOR COMPOUNDS AND MELTING

ABSTRACT OF THE DISCLOSURE

A metallic article is produced by furnishing one or more nonmetallic precursor compound comprising the metallic base nickel, cobalt, iron, iron-nickel, or iron-nickel-cobalt, and at least one alloying element. The nonmetallic precursor compound(s) are chemically reduced to produce an initial metallic particle without melting the initial metallic particle. The initial metallic particle is thereafter melted and solidified to produce the metallic article. The melted-and-solidified metal may be used in the as-cast form, or it may be converted to billet and further worked to the final form.